Research into the Financing of Technical and Vocational Education and Training (TVET) in the Pacific

Overview Paper: The Research at a Glance

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This overview paper is based on research undertaken by the Australian Council for Educational Research (ACER) 2012-2014 for the Australian Department of Foreign Affairs and Trade under the research project *Research into the Financing of TVET in the Pacific* and on the various reports produced by ACER over the course of that research. However the use made of the ACER research and the views expressed in this paper are those of the author alone and do not necessarily reflect the views or policies of either ACER or the Government of Australia.

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LIST OF ACRONYMS

ACER	Australian Council for Educational Research
ADB	Asian Development Bank
APTC	Australia-Pacific Technical College
AusAID	Australian Agency for International Development*
Cedefop	European Centre for the Development of Vocational Training
DFAT	Australian Government Department of Foreign Affairs and Trade*
ETF	European Training Foundation
EU	European Union
FJD	Fijian Dollar
FTE	Full-time equivalent
GDP	Gross Domestic Product
ILO	International Labour Organization
ISCO	International Standard Classification of Occupations
NRG	National Reference Group
NZ	New Zealand
ODA	Official Development Assistance
OECD	Organisation for Economic Co-operation and Development
OECD-DAC	OECD Development Assistance Committee
PEDF	Pacific Education Development Framework
PIC	Pacific Island Country
PIFS	Pacific Islands Forum Secretariat
PNG	Papua New Guinea
PQF	Pacific Qualifications Framework
PSET	Post-School Education and Training
RTO	Registered Training Organisation
SPC	Secretariat of the Pacific Community
SQA	Samoa Qualifications Authority
TVET	Technical and Vocational Education and Training
TVETSSP	TVET Skills Scholarships Program (in PNG)
UNESCO	United Nations Education, Scientific and Cultural Organisation
UNEVOC	UNESCO International Centre for Technical and Vocational Education and Training
UIS	UNESCO Institute for Statistics
USP	University of the South Pacific
YTC	Youth Training Centre

* AusAID was integrated into DFAT in October 2013. Citations of AusAID in this report refer to the original authorship and material produced before that time. The documents concerned are available through DFAT.

ACKNOWLEDGEMENTS

In addition to drawing on the country reports prepared for and published by ACER under the research project, this Overview Paper draws on the following unpublished papers produced by ACER in the course of the research.

ACER (2014b). *Draft Synthesis Report*, 10 November 2014. Melbourne: ACER.

McKenzie, P. (2014a). *Regional Framework TVET Finance Data Collections*. Draft Thematic Paper, 25 September 2014. Melbourne: ACER.

McKenzie, P. (2014b). *Unit Costs of TVET Provision*. Draft Thematic Paper, 4 October 2014. Melbourne: ACER.

Horne, R. (2014a). *The Role of Fees, and Financial Support, in Facilitating Student Access and Course Completion*. Draft Thematic Paper, 19 December 2014. Melbourne: ACER.

Horne, R. (2014b). *Marshalling Private Resources for TVET*. Draft Thematic Paper, 18 December 2014. Melbourne: ACER.

1. INTRODUCTION

1.1 About This Paper

This paper provides an overview of a large-scale research study on the financing of TVET in the Pacific that was commissioned by the Australian government's Department of Foreign Affairs and Trade DFAT (formerly AusAID) and conducted by a team of international and national researchers from the Australian Council for Educational Research led by Dr Phillip McKenzie and supported by Scope Global (formerly Austraining International).

Over the study period 2012-2014, independent in-depth studies of national TVET financing arrangements were conducted in seven Pacific countries: Fiji, Kiribati, Papua New Guinea (PNG), Samoa, Solomon Islands, Tonga and Vanuatu, The seven Country Reports arising are now publicly available and provide the foundations for this paper, together with other unpublished papers produced by the ACER in the course of the research.[1]

This short paper does not attempt to provide a summary of all findings from each of the country studies undertaken; these comprise more than 1,000 pages of primary and secondary data, information and analysis. Rather, the paper is deliberatively selective; highlighting those findings and analysis likely to be most relevant regionally.

This broad introduction to the research is one of four Overview Papers commissioned by DFAT for the purpose of capturing the high-level findings of the research and making them regionally accessible to inform discussion about Pacific TVET financing policies and practices. The other three overview papers that accompany this one are:

- Sustainable Financing of TVET in the Pacific (Palmer, 2015a)
- Private Resources for TVET (Palmer, 2015b)
- Strengthening TVET finance data collections (Karmel, 2015)

1.2 Aim and Rationale

The aim of the research was to produce a comprehensive empirical analysis of the existing systems for financing TVET in seven Pacific countries, identify key cross-country financing issues and identify options through which future financing for the TVET sub-sector of education could be made more efficient and effective at both national and regional levels.

For many years, Pacific Forum Leaders and Pacific Island Forum Ministers of Education have called for more market-driven and relevant skills development that could assist Pacific Island countries to drive and support economic growth, to narrow the growing skills gap, and to combat the rapid growth of unemployment especially among young people.

The research was conducted at an important stage in the development of TVET among Pacific Island countries. In 2012 Pacific Forum Ministers of Education endorsed an overarching framework for TVET in the Pacific region for the years 2012 – 2015 (PIFS, 2012) and most of the countries that participated in this study have made efforts to strengthen their TVET systems, and human resource development more generally.[2]

However, such frameworks and strategies can only achieve their objectives if appropriate policies and practices for financing TVET are established. If more people in Pacific countries are to have access to opportunities for good quality initial and continuing vocational skills

[1] These are listed previously in the Acknowledgements section.

[2] The regional TVET framework was linked to the TVET outcome under the Pacific Education Development Framework (PEDF). An independent review of the TVET framework was underway at the time this paper was written (April 2015).

development, then national skills development systems will need to grow, and changes to existing financing systems will be needed to support that growth.

At the same time, DFAT has been increasing its investments in vocational skills development across the region and supporting evidence-based reform in the sector. It has a specific interest in identifying innovative mechanisms at national and regional level that will support outcome-oriented funding for skills development; and increasing the investment of the private sector in skills development through private sector initiatives and through public-private partnerships. However, there was no comprehensive knowledge base about the structure of current costs, financing sources or allocation mechanisms for TVET in the Pacific, or about their effects, that could inform DFAT's investment decisions. The research was intended to strengthen this knowledge base and establish a baseline for future national and international efforts to strengthen TVET financing systems.

Annex A describes the research methods used.

2. A SNAPSHOT OF TVET PROVIDERS AND ENROLMENTS

This section draws largely from Annex B which provides an overview of TVET providers, structures and enrolments derived from the country studies and subsequent ACER analyses.

2.1 TVET providers

The study was able to identify 571 providers of TVET within its scope across the seven countries. These comprised:

- 172 public providers managed by government education and training agencies, autonomous statutory bodies or other line Ministries and agencies;
- 397 private providers;[3] and
- 2 regional providers offering TVET in a number of the participating countries.[4]

Among the participating countries a number of private providers, including church-run providers receive significant government funding, and some public providers receive 'private' income in the form of student fees, and sales of goods and services. The distinction between public and private providers made in the research relates to the managing organisation, and not the source of funds.

[3] Table B2 in Annex B.

[4] The University of the South Pacific (USP) and the Australia Pacific Technical College (APTC). In addition, the Open College of UPNG offered courses on the Solomon Islands. Data on FNU's regional offerings in the form of either direct delivery in other countries of the region or indirectly through its franchised programs could not be obtained at the time of finalisation of the Fiji Country Report.

Table 1. In-scope Providers of TVET by Provider Type and Number

Country	Public providers	Private providers	Regional providers
Fiji	15	107	
Kiribati	6	2	
PNG	135	200*	
Samoa	1	4	2
Solomon Islands	9	35	
Tonga	2	10	
Vanuatu	4	39*	
	172	397	2

* Estimate
Source: Derived from the seven country studies.

2.2 TVET student numbers

Student record keeping by Pacific TVET providers, even in the public sector, is patchy. As a consequence, the most basic data relating to student enrolments and graduations was difficult to assemble. The following estimates should be treated with considerable caution.

Overall, the percent of the country population enrolled in TVET (as defined in the study) is generally low by international standards, ranging from 3.5% in Fiji to 0.5% in PNG, with an overall proportion of about 1% for the countries concerned.[5]

Participation by females in TVET is generally much lower than these aggregate figures would suggest and a strong gender bias in the choice of subjects of study was evident. Participation in TVET also appears to be much lower for people experiencing disadvantage such as those in poverty, people living in isolated locations, and those with a disability. Very few of the countries had data available which mapped education and training participation by such characteristics, which is itself an indicator that their needs are not being met.

Around three quarters of all TVET students are enrolled in public providers and most are enrolled on a full-time basis. The high proportion of full-time enrolments was often raised in the consultations as an indicator that the TVET sector lacks flexibility in the range of programs on offer, and is generally geared towards training at the pre-employment level.

Horne (2014b) has estimated that the share of TVET enrolments in 'pure' private providers (i.e. those wholly or predominantly reliant on raising their own revenue without any government or donor support) is less than 10% in most of the participating countries.

Table 2. Student Enrolments in TVET by Provider Type

	Estimated enrolments in TVET by head-count		Estimated FTE enrolments in TVET	
	Enrolments	**%**	**Enrolments**	**%**
Public providers	61,455	76	46,265	78
Private providers	16,936	21	10,920	19
Regional providers	2,258	3	1,976	3
	80,649	**100**	**59,161**	**100**

Source: Derived from Tables B5 and B6 in Annex B which were in turn derived from the country reports.

[5] Table B5 in Annex B.

2.3 Provider size

A particularly striking finding of the research is how small most Pacific TVET providers are by international standards. Fiji National University is the largest single institutional provider of TVET. No other single Pacific institution comes close to its size although vocational training centres in PNG, *as a group*, were slightly larger. The majority of providers of TVET have less than 1,000 enrolments by head count and many have less than 500 enrolments. This raises questions about their effectiveness as training deliverers and about the cost-effectiveness of their operations. In some cases small size reflects isolated catchments but there are many other factors in play.

3. KEY FINDINGS

Despite the limitations in the data either available or able to be collected, the fieldwork, data collections and consultations in each country has provided the most comprehensive analysis of TVET financing to date in the participating countries.

3.1 Sources of funding for TVET

It is estimated that TVET receives recurrent funding of around US$ 127m per year, although this is likely to be an under-estimate given that financial data in some countries was drawn from a selection of providers and not all providers, and data on industry contribution was not comprehensive. Table 3 summarises the main shares of the TVET funding across all seven countries.

Table 3. Shares in TVET funding for institutional public and private TVET - All seven participating countries

	% all sources	% all sources excl. APTC
Government grant	30.2	37.6
Official overseas aid excl. APTC	13.4	16.6
APTC	19.6	n/a
Student fees	28.4	35.3
Private resources	8.4	10.4
of which		
Church and NGO donations	0.5	0.6
Industry contribution	5.6	6.9
Sale of services etc.	1.0	1.2
Other sources	1.4	1.7

Note: For the purpose of this table, and the Study more broadly, private resources are defined as comprising donations from Churches and Non-Government Organisations, income generation from sales of products and services and any other sources. It does not include training within the firm.
Source: Summarized from Annex 1 in Palmer (2015b) which was derived from country reports and ACER (2014b).

The research makes the following general observations about sources of TVET income.

Government Grants

- Government grants comprise around 38% all TVET funding (excluding APTC), most often in the form of payment of TVET teacher salaries in public TVET providers and operating grants from government for non-teaching costs to both public and private providers.

- The proportion of TVET financing sourced from government grants is highest in Samoa and the Solomon Islands (63% and 54% respectively) and lowest in Kiribati, PNG and Vanuatu (30%).

Student Fees

- Student fees are the second-largest source of funding for TVET public and private providers, providing an estimated 35% of recurrent funding for the participating countries as a whole, excluding funding for APTC.
- Many of the fee-schedules put fee levels at very high levels relative to average family incomes. However, there is a widespread practice of fee waiver and provision of scholarships that cover all or part of the fees which can have a self-cancelling effect. In practice therefore, the contribution of 'pure' fee income to TVET is likely to be lower than the research estimates.
- Most public and private TVET providers charge fees and fees in Fiji, PNG and Solomon Islands are much higher than in Samoa or Tonga
- Dependency on fee income varies significantly between institutions. For example, fees comprise 1.4% of the total income of the Kiribati Institute of Technology and 63.6% of the total income of the sum of five Technical and Business Colleges in PNG (Horne, 2014a).
- In all seven countries except Kiribati, the gross contribution of fees to the funding of TVET is substantial. The study's Surveys indicate that among the other six countries, the gross contribution of fees to the funding of the TVET system as a whole (including public and private providers) ranged from about 60% in PNG, through over 40% in Solomon Islands and Fiji, to just over 20% in Samoa and Tonga, and 12% in Vanuatu.[6]
- Major public providers of TVET, such as the Fiji National University and the National University of Samoa, are increasingly reliant on student fee income for funding non-personnel expenditure and for promoting growth. APTC, the major regional provider, is one of the institutions least reliant on student fee income.

Official Development Assistance

- Official Development Assistance (ODA) is estimated to provide about 17% of funding in various forms, excluding Australia's support of APTC. When funding for APTC is included, ODA is estimated to constitute about one-third of funding for TVET across the seven countries.
- The research was unable to find evidence of risk mitigation strategies in participating countries should donor funds for TVET be reduced in the future.

Private resources

- The shares of TVET funding (excluding APTC) contributed by private resources varied markedly between two groups of countries:

  ~ For Fiji, Papua New Guinea, Samoa and Tonga, within a range from 10% to 16%;
  ~ For Kiribati, Solomon Islands and Vanuatu from 0% to 7%.

- These very striking differences between the two groups roughly correspond to the relative prosperity of the countries concerned.
- Samoa's contribution from private resources (16%) stands out as large relative to the size of its system.

[6] These system percentages may be affected by the limited coverage of the country Surveys, particularly in PNG, Solomon Islands and Vanuatu. In any event they conceal much variation.

- It is estimated that around 0.6% of TVET funding is from **church groups**, although this significantly understates their actual resource inputs since an important part of their contribution is through staff salary subsidies and volunteers.
- Around 7% of TVET funding comes from **industry**, although again this is likely to be an under-estimate. Formal enterprises directly finance training activities, including through enterprise-based training (in-house professional development, apprenticeships), or paying the fees of external providers. Two of the seven countries studied (Fiji and PNG) have industry training levies. Four of the seven countries have formal apprenticeship schemes (Fiji, PNG, Samoa, and the Solomon Islands). Industry contributions also include the donation of equipment which is being re-placed at the work-place but is still good for training, and occasionally buildings no longer required; and the provision of work placements to trainees.

Capital Funding

- The main forms of capital funding found were grants from governments and ODA or loans from aid organisations in a minority of cases.
- Capital expenditure tends to show significant fluctuation from year-to-year, and is heavily influenced by building programs in individual countries.

3.2 Expenditure patterns and trends in TVET

In general, it proved more difficult to estimate the distribution and levels of expenditure within TVET than it did to document sources of income.

It was estimated that in aggregate a little over US$ 200 million was spent on TVET in the seven participating countries in the reference year. This was equivalent to about 1% of combined GDP. After excluding capital expenditure, spending on scholarships and expenditure by APTC, recurrent expenditure for national systems of TVET would be about half of these levels.

The studies also indicated wide variation in the share of national resources that different countries allocate to TVET – an estimated 0.6% of GDP in PNG and Vanuatu, around 1.3% in the Solomon Islands and Tonga, about 1.6% of GDP in Fiji and Kiribati, and 2.0% to 2.5% in Samoa.

The country that has the lowest proportion of its population enrolled in TVET (PNG at an estimated 0.5%) is at the lower end of this range, while the two countries with the highest proportions enrolled in TVET (Fiji and Kiribati at 3.5% and 2.4%, respectively) are towards the upper end in terms of the proportion of GDP allocated to TVET. On the other hand, Samoa, which has one of the lowest proportions of population enrolled in TVET (an estimated 1%), spends a relatively high proportion of GDP (an estimated 2.0% to 2.5%). Even if, as is likely, these numbers under-estimate actual expenditure (due to limited collection of data from private providers and enterprises), the TVET sector does not appear to be well-resourced

Recurrent Expenditure

- In aggregate, recurrent expenditure on TVET (excluding APTC) is estimated as a little over US$ 105 million, based on the most up-to-date annual data for the participating countries.
- Expenditure on APTC was estimated at around US$ 25 million.
- Reflecting the relative size of their TVET sectors, recurrent expenditure in each of Fiji and PNG was higher than for the other five countries combined.

Capital Expenditure

- Adequate capital expenditure is a key issue for the development of TVET although it was not one which the study was able to investigate in depth.
- Capital expenditure was estimated at a little over US$ 20 million
- In most of the participating countries expenditure on buildings and equipment seemed low, and less than 5% of the respective country totals. It was commonly observed and raised in consultations that capital expenditure fell far short of what was needed for quality TVET provision.
- Apart from under APTC, little of the more recent ODA in TVET has been for capital works or large-scale equipment programs.
- Capital expenditure appeared particularly high in Kiribati and PNG in the period considered. [7]

TVET expenditure by expenditure category

Table 4 identifies the composition of TVET expenditure by expenditure category.

Table 4. Share of total estimated expenditure on TVET by expenditure category - All seven participating countries, all provider types

Expenditure category	% of recurrent exp.	% of total TVET exp.
Recurrent Expenditure		
Personnel (1)	51	30
Maintenance & other operating expenditure	35	21
Overheads	14	8
Other Expenditure		
Capital expenditure		12
Scholarships (2)		26
Other expenditure		3
	100	**100**

Notes:
(1) This may well be an under-estimate as other recurrent expenditure categories are likely to include some expenditure on personnel.
(2) The estimates of expenditure on scholarships need particular caution because of the difficulty of determining the sector to which scholarships are most appropriately classified.
(3) Expenditure on APTC is excluded from this calculation because its funding arrangements are separate from national systems.
Source: Summarised from Table 6.2 in the draft synthesis report (ACER 2014b:54) which was derived from the seven country studies.

Not surprisingly, *personnel expenditures* take the largest share of both recurrent and total TVET expenditures. However, the country studies identified important variations between the cost structures in individual countries and also between public and private providers.

- The Tonga study found that of all recurrent funds, 70% was allocated to staffing and personnel costs with significant variation in this share across each of the TVET systems. Large proportions of recurrent expenditure are allocated to staffing and personnel costs in the government providers, (in the range 78-88%) while expenditure on personnel in the church providers was proportionately much lower (45-46%) reflecting the relatively low salaries in those sectors (Bateman et al., 2013:91).

[7] In PNG it included substantial capital spending by the Government of PNG and funding from the People's Republic of China for community colleges. In Kiribati it included capital expenditure at the Marine Training Centre with funding support from New Zealand Aid.

- In PNG, the proportion of Government of PNG funding for the public Technical and Business Colleges devoted to staff benefits falls in the range 90-91% in each of the years from 2011 to 2014 (Horne et al., 2014:94).
- In Samoa, while there were marked differences in salary levels between the main public provider and other providers in TVET in Samoa, this difference was not necessarily reflected in the proportion of spending devoted to personnel costs between public and private institutions. Wages, salaries and other staff emoluments as a proportion of total expenditure at the National University of Samoa was projected at 71% for 2012-13 while amongst private providers it ranged between 77% (Don Bosco Technical College) and 35.5% (Tesese Institute of Administrative Studies). Providers operated by religious bodies were able to devote a much greater percentage of their annual revenues to paying staff than was the for-profit provider (Maglen et al., 2013: 100-105).

Scholarships are the traditional form of student support across all the countries studied and take many forms. Expenditure on scholarships was estimated to be about 26% of total TVET expenditure (US$ 45 million). However, in a number of countries (notably Solomon Islands and to some extent Tonga), there is a lack of separation of data between those granted to higher education and those granted to TVET so, again, caution is needed in interpreting the data.

The research makes some general observations about scholarship expenditures.

- Expenditure on scholarships was particularly high in the Solomon Islands and proportionately quite high in Kiribati. These two countries have the lowest GDP per capita among the group, and receive significant donor support. Compared to other counties in the region the Solomon Islands and Kiribati tend to lack domestic opportunities for tertiary education and training.
- The proportion of students covered by scholarship schemes varies from one Pacific Island country (PIC) to another, but is often quite small.
- In general, scholarships often give strong weight to academic merit, and sometimes to capacity to pay, but there are a number of smaller initiatives which target particular disadvantaged groups such as those from rural and remote areas.[8] Persons with disabilities sometimes benefit from fee remission.
- In some of the countries (e.g. PNG, Solomon Islands), significant numbers of scholarships are awarded by provincial governments and Members of Parliament, drawing on public funds. Such schemes normally relate to students from a specific area, and to study in that area or in institutions close to it. These schemes are a welcome addition to TVET resources, but there may be a lack of transparency in scholarship award, and students of equal merit in the same class may get different treatment depending on where they live.
- The evidence does not enable confirmation of whether the scholarship schemes currently in operation have a systematic effect on participation or completion.

Maintenance and other operating expenses (such as utilities, teaching materials and consumables) comprise around one third of all TVET recurrent expenditure but there are important variations between countries. The proportion of total TVET recurrent expenditure applied to maintenance and other operating expenses was highest in Tonga (54%) and Kiribati (50%) and lowest in Samoa (19%).

There is national and regional recognition of the need to improve quality in TVET. However, the research was unable to quantify the proportion of expenditure on TVET that could be

[8] The Independence Fellowship Scheme in PNG is an example of a scholarship scheme with a firm focus on disadvantage and a commitment to selection criteria and courses of training appropriate to its target group.

defined as *quality related expenditures*. Such expenditures would usually be targeted to activities such as the development of competency standards, teaching and learning materials and assessment, curriculum review and development, teacher training and continuing professional development, industry liaison, provision of safe and suitable learning spaces and quality assurance arrangements at the system and/or provider levels. With some exceptions,[9] the country studies suggest that such expenditures from national budgets are low and irregular, and dependent on whatever opportunities can be found from year to year by TVET providers or authorities through the national budget process or ODA.

All country research teams collected data about equity issues relevant to TVET, and the financial assistance schemes available. However the study was unable to quantify *equity-related expenditures*. Such expenditures would usually be through targeted programs that seek to increase access to, participation in and successful learning, employment and income outcomes for women, students from rural and remote areas, persons with disabilities and for vulnerable ethnic groups. The study did identify some examples where scholarships and fee relief are so targeted, such as scholarships in Tonga and Kiribati (Horne, 2014a). It also identified some examples of where programs are achieving positive equity outcomes such as the Vanuatu TVET Sector Support Program which has had a particularly positive impact on participation by women in training, and on the incomes of households headed by women (ACER, 2014a). While such expenditures could not be quantified, a scan across the seven country studies indicates they are a likely to be a very low proportion of total expenditures.

3.3 Cost of TVET Services[10]

A unit cost is defined in the research as a measure of the costs of a given form of TVET provision (for example, of an institution, a course or a qualification provided by an institution, or a curriculum unit or class within a course) that is calculated in a way that facilitates comparisons between different providers.

For policy and planning purposes, estimates of unit costs of delivering courses at different levels and in different fields of study are important measures, since they provide a basis upon which to compare alternative forms of TVET provision in terms of their internal efficiency and against their actual and expected outcomes (effectiveness). Unit costs are also important in considering the potential expansion of TVET. Four unit cost measures were employed in the research, each involving a different denominator.

Table 5. Summary table showing the uses of each type of unit cost

Type of Unit Cost	Uses
Costs per student	A summary measure of cost per student enrolled.
Costs per graduate	A summary measure of the inputs needed to produce a unit of output. The narrower the difference between costs per student and per graduate, the more likely it is that providers are achieving high course completion rates.
Costs per training hour	Useful as standard measures of comparison across the diversity of fields and levels that typically are found in TVET sectors, and in the mix of short and long courses and alternative delivery modes.
Costs per student training hour	

Source: Palmer (2015a: Table 6).

The research noted that one type of unit cost is not necessarily *better* than any of the others: it all depends on the purposes for which unit costs are used. From a planning perspective it is helpful to have information on different unit cost measures in order to develop a comprehensive picture of TVET's operations.

[9] Such as Samoa where the Samoa Qualifications Authority has a strong quality assurance mandate and receives substantial funding to support quality assurance at system and provider level.

[10] This section draws extensively from material in ACER (2014b) and McKenzie (2014b).

Table 6 summarises the extent to which each of the country studies was able to obtain data to enable estimates to be made for the four unit cost measures employed, and for the three major types of TVET providers analysed: public providers, private providers and APTC as the main regional provider.

Table 6. Provision of TVET unit cost estimates through the country studies

Type of TVET provider and unit cost measure	Fiji	Kiribati	PNG	Samoa	Solomon Islands	Tonga	Vanuatu
Public providers, cost:							
per student	✓		✓	✓	✓	✓	✓
per graduate	✓		✓	✓	✓	✓	
per training hour	✓			✓	✓	✓	✓
per student training hour	✓			✓	✓	✓	✓
Private providers, cost:							
per student	✓		✓	✓	✓	✓	
per graduate	✓		✓	✓	✓	✓	
per training hour				✓	✓	✓	
per student training hour				✓	✓	✓	
Regional providers, cost:							
per student	✓	n.a.*	✓	✓	n.a.*	n.a.*	✓
per graduate	✓		✓	✓			✓
per training hour	✓		✓	✓			✓
per student training hour	✓		✓	✓			✓

Note: In each country study, the providers of TVET programs were categorised as to whether they are primarily public (i.e. under the management of government ministries, departments or agencies) private (including Church, NGO, and for-profit providers) or regional (i.e. oriented to operating in more than one country, the main one in regard to TVET being APTC). Data could not always be obtained for all the institutions in each category.
* *n.a*. = not applicable. APTC does not have a campus in either Kiribati or Tonga; and although APTC now has a campus in the Solomon Islands, it had not commenced at the time of the fieldwork.
Source: ACER (2014b), derived from the country studies.

The unit cost estimates show great variation between different types of TVET providers and different types of programs within the countries concerned, and generalisations need to be treated cautiously. Table 7 illustrates the variation between three types of providers in Fiji.

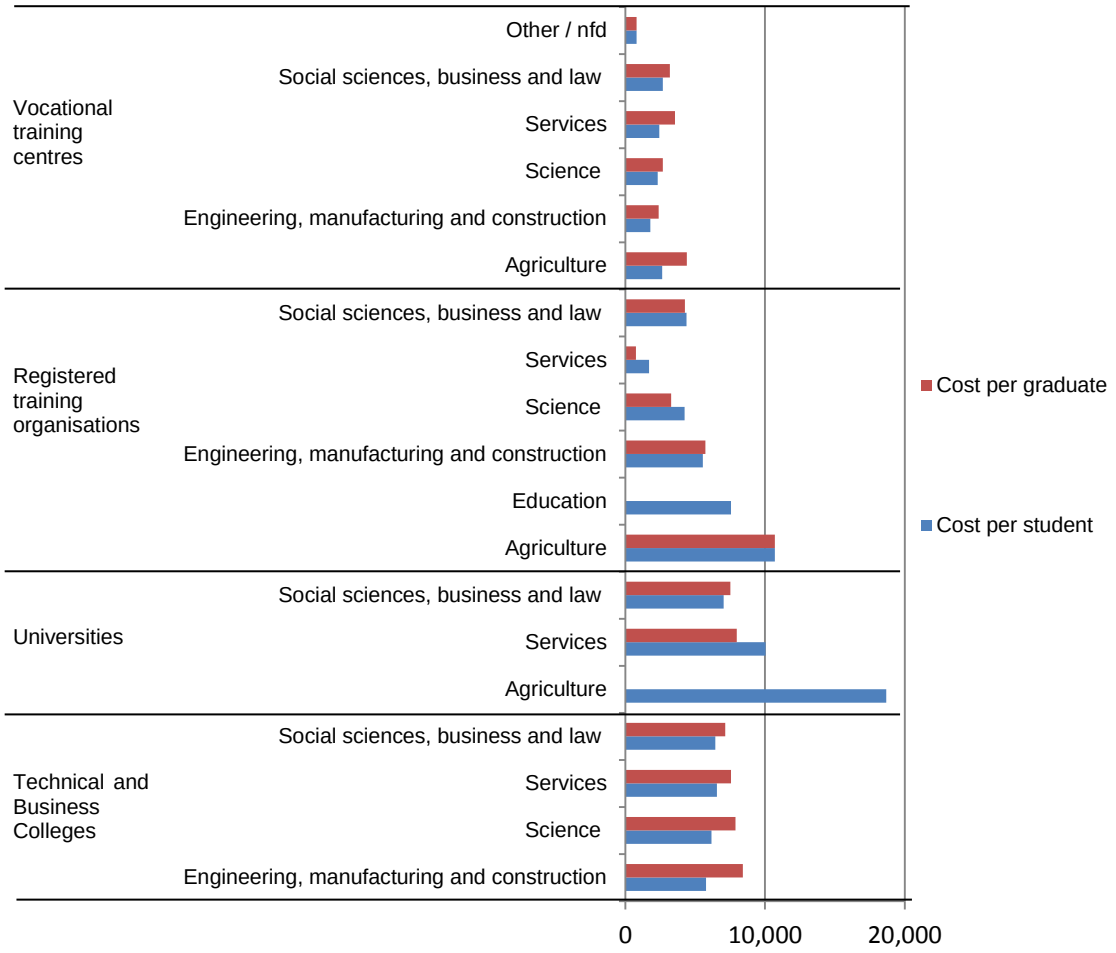
Table 7. Fiji: Estimated unit costs of TVET delivery, by selected providers, 2012 (FJD)

Type of Provider	Cost per student	Cost per graduate	Cost per hour	Cost per student hour
Ministry of Education registered vocational schools (87)[1]				
Average per vocational school	1,621	4,533	34.1	1.41
Range	200 – 9,000	100 – 44,000	2-140	0.2 - 6.3
Ministry of Youth and Sports youth training centres (4)				
Average per YTC	1,812	1,900		
Range	415 – 2,766	415 –2,766		
Private providers (6)				
Average per private provider	2,050	2,360		
Range	150 – 3,660	230 – 9,220		

Note: (1) These are facilities adjunct to secondary schools that provide TVET programs. Almost all the vocational schools registered by the Ministry of Education are run by civil society and NGO committees, and receive funding support from the Ministry.
Source: Maglen et al (2014).

Figure 1 illustrates variations in unit costs between types of programs in PNG.

Figure 1. PNG: Estimated unit costs, by provider type and CEDEFOP field of training, 2012 (PNG Kina)



Source: Horne et al (2014).

It should also be noted that relatively low unit costs may reflect the fact that teachers have low salaries and little support, and should not necessarily be interpreted as indicating internal efficiencies and indeed, the opposite may be the case.

Despite these wide variations, some common features emerged from the ACER analysis.

- Institutional size did not appear to play as big a role in reducing unit costs as may be have been expected from the literature on scale economies in education. This may be because the range of TVET institutional sizes in participating countries was quite narrow. It may also reflect the fact that larger institutions generally seem to provide a greater number and variety of programs, which means they may not be able to reap the benefits of scale economies.
- There was generally much less variation between different types of providers and programs when costs were expressed in per training hour and per student training hour terms than there were when costs were expressed in terms of per student enrolment. This may reflect the fact that the latter measure is not particularly useful on its own in the TVET sector because it is unable to capture the diversity of fields and levels that typically are found in TVET sectors, and the mix of short and long courses and alternative delivery modes that are used.

- For a number of providers (and some programs within providers) there were marked differences between the cost per graduate and the cost per student, which raises concerns about low course completion rates. The narrower the difference between the two measures, the more likely it is that providers are achieving high course completion rates. However, another possible reason for a narrow difference is that providers are not keeping accurate records of graduations, and assume that most graduate. It is noteworthy that when expressed in per graduate terms, the costs of some providers did not appear to be all that much lower than the highest cost provider, namely APTC, especially before overheads were included.

3.4 Financing Mechanisms for channelling TVET funds

The question of how to finance enhanced TVET provision in the Pacific is clearly critical. Along with TVET funding levels, financing mechanisms have the potential to influence the achievement of national development objectives (effectiveness), outputs per unit cost (efficiency) and the degree to which women and men from different backgrounds and locations have access to good quality training (equity).

Financial flows

It proved a major challenge in the research to understand for each country the financial flows and funding mechanisms used to channel those flows. All country studies uncovered highly complex financing systems which, in the general absence of a national apex organisation with a mandate to oversee a unified funding system for TVET, are poorly understood and can lead to high transaction costs and inefficiencies. It was clear from the research that no one agency or authority held the full picture of the TVET sector, or of its funding arrangements. To illustrate this complexity, Annex C offers a summary diagram of TVET financing flows in Solomon Islands. Similar illustrations are provided in most country reports.

Government financing mechanisms

The different mechanisms through which governments in the seven countries fund TVET are summarised in Table 8.

Table 8. Financing Mechanisms in Use in Pacific Countries Studied

Financing Mechanism	In use in country studies
Government payment of TVET teacher salaries in public TVET providers	All except Samoa & Kiribati (unknown)
Government payment of TVET teacher salaries in non-profit private TVET providers	All
Operating grant from government for non-teaching costs to public and/or private providers	All
Tuition fees	All
Scholarships	All
Funds from commercial activity	All except Kiribati
Materials / project fees	Tonga, PNG. Others unknown
Levy-based training fund	PNG, Fiji
Student loans	Fiji, PNG, but very limited use
Tax reductions/ Tax Rebates	Tonga
Vouchers	None identified
Training leave	None identified

Source: Summarised from Annex 3 in Palmer (2015b), which was derived from analysis of the country studies.

Donor financing mechanisms and modalities

International donor contributions to financing TVET in the Pacific are significant (Table 3), and when funding for APTC is included, ODA is estimated to constitute about one-third of funding for TVET across the seven countries. So the mechanisms that donors use to channel their funds to TVET are particularly relevant to Pacific TVET financing systems.

Virtually all ODA across the seven countries is in the form of grants (transfers in cash or in kind for which the recipient incurs no legal debt). Only in PNG was a loan identified; from the People's Republic of China (PRC) tied to the purchase of pre-fabricated units for new Community Colleges.

Table 9 below provides a high level summary of the types of aid modalities identified by the country studies. The two most commonly used are Project-type interventions and Scholarships for overseas study. In only one country (PNG) was budget support for the education sector applied explicitly to the TVET sub-sector, and this was both modest and short-term (Horne et al, 2014:103).

Table 9. Types of aid modalities used by donors to support TVET in the PICs

Financing Mechanism	
Budget support	Budget support to the education sector was used only in Solomon Islands at the time of the study but few (if any) of these funds were applied specifically to the TVET sub-sector. In PNG, sector budget support was provided by Australia for 2013 on a small-scale to the TVET sector through the National Department of Education.
Core contributions and pooled programmes and funds	The only use of core contributions was the Skills Development Trust Fund in PNG. Examples of pooled funds applied to TVET were rare. The studies did not identify any public-private partnerships where donors used pooled funds, although early discussions on one in PNG (Lae) were underway at the time of the study, potentially to be supported by Australia
Project-type interventions	This is the most widely used mechanism to support TVET. Projects and programs of highly variable scale and duration were evident in all countries studied. APTC was the largest. Australia is the largest donor. New Zealand, Japan and EU were also providing project financing. Some examples were identified of aid for TVET projects and programs being channelled through NGOs; e.g. in Vanuatu by NZ. Occasional small grants direct to individual vocational training centres and schools were made by a range of donors across most countries studied. The PNG Incentive Fund provided substantial grants to two TVET providers for infrastructure.
Experts and other technical assistance	Some provision of a range of relatively small-scale technical assistance to TVET by donor experts was evident in most countries. This included the provision of specialist volunteers (e.g. by Japan), local scholarships (e.g. NZ), in-country training, support for conferences, seminars and workshops and non-project-related analytical studies.
Scholarships and student costs in donor countries	This type of aid was identified in all countries studied, although explicit targeting of scholarships to TVET was rare. Donors include Australia, India, Japan, NZ, Republic of China (Taiwan) and People's Republic of China (PRC).

Note: The typology above is based on the OECD Development Assistance Committee (DAC) categorization of types of aid. See OECD DAC Codelist, Type of aid subcodes, 2014, http://www.oecd.org/dac/stats/dacandcrscodelists.htm
Source: Derived from the seven country reports.

Methods of allocating public funds to TVET providers

Allocative mechanisms not only allocate the resources for TVET provision but, if appropriately fashioned, can constitute important tools for influencing the outcomes of the training system as a whole and its constituent parts. Through a combination of incentives and sanctions, the suppliers of financing for TVET (notably governments, but also church institutions and donors) can shape the funding so as to achieve specified output objectives.

The system by which any country allocates public funds to its tertiary providers (TVET and higher education) is influenced by its historical, socio-economic and political circumstances. While the systems for allocating TVET funds in the seven countries inevitably reflect different national circumstances, some common threads were evident.

- For the period concerned, all countries were using some form of input-based allocation models. The most commonly used are negotiated or ad hoc budgets primarily based on historical trends. Earmarked funds were rare. Where funding formula based on inputs such as staff numbers, staff salaries, students enrolled or student guided hours were used, they were not based on the actual costs of those inputs and were not necessarily transparent or widely understood.
- With the exception of APTC, the study did not identify the application of any output-based allocative models such as funding based on student completion rates, graduates by level, employment outcomes of graduates or the number of graduates in jobs related to their training. There appears to be few incentives to improve internal efficiencies or to improve outcomes of training, as funding does not depend on it. Indeed, the widespread absence of valid and reliable output data in most Pacific TVET systems constrains the use of such allocative instruments.
- Beyond ODA-supported programs such as the PNG Incentive Fund or the Employment and Training Fund of the Vanuatu TVET Strengthening Support Program, no examples were found of other performance-based allocation models such as performance contracts or competitive funds designed to achieve institutional improvement or national TVET policy objectives.
- However, the TVET Skills Scholarships Program (TVETSSP) in PNG offers a bold example of how the country, faced with a significant skills gap identified through labour market analysis, used a purchasing model to procure pre-apprenticeship training of good quality from overseas, and place the graduates with PNG employers.
- Developments in Fiji are of particular interest. At the time of the country study, the model for funding post-secondary education and training was based on inputs. With the establishment of the Fiji Higher Education Commission with a mandate to establish new allocative mechanisms and the criteria upon which they are based, there is a clear intention to develop a funding model that will recognise performance (outputs and outcomes) as much as costs (inputs). This will require quantitative data on performance (in terms of quality outcomes) that are able to be related to quantitative data on inputs. Implementation of a new more output-oriented funding model has commenced.

The ADB study Skilling the Pacific concluded that: *Inefficiencies occur in part because training budgets are established based on historical levels, not performance. Little use is made of financial transfer mechanisms to improve the input–output ratios in TVET* (ADB, 2008: xxii). This research has confirmed those findings.

4. ISSUES AND FUTURE DIRECTIONS

Financing is central to any strategy for enhancing TVET in the Pacific, and changes to existing financing systems will need to be both socially acceptable and politically practicable.

Each of the country studies identifies issues of particular relevance to national TVET policies, planning and delivery and offers suggestions for the continuing development of a sustainably funded national TVET system. These deserve close consideration by the key authorities and stakeholders in each country and can be used to inform the national TVET action agenda.

This paper complements the national studies by focusing on those issues and suggestions about future directions that were found to recur across multiple countries. In highlighting only cross-country issues and future directions, this section is highly selective.

4.1 A comprehensive approach to TVET policy, planning and financing

The study was focused on the financing of TVET, but issues of finance cannot easily be separated from those of policy and planning. They are essentially two sides to the same coin – policy and planning can be reduced to earnest intentions and empty gestures without adequate financial backing, and finances can easily be frittered away or be in danger of being wasted if not conducted within a firm policy and planning framework. This applies to TVET in any country, including the Pacific countries studied (Maglen et al, 2014:175).

All country studies concluded that TVET in those countries was fragmented and lacked strategic coherence. No comprehensive picture of TVET was available and no one had the full picture. Disconnects between policy, planning and resourcing were evident everywhere to differing degrees, and no single agency or authority had the mandate to bring them together for the whole TVET sector so that its many constituent parts could work together harmoniously, developing synergies, sharing resources and creating pathways for students.

The evidence from this research (and earlier studies such as ADB, 2008) clearly and consistently points to the need to improve overall management and coordination of the TVET sector to achieve greater policy coherence, better overall management and oversight, and, consequently, additional efficiency and equity. How best to do this is a matter for each country to consider. However the studies suggest that without a national apex or umbrella body mandated by government to bring the sector together, including its financing arrangements, better outcomes for female and male students, for employers, public and private providers and governments are unlikely.

4.2 Output-oriented funding of institutions

It is also reasonable to conclude from the research that the existing funding could be used more efficiently. Country studies point to inefficiencies at every level. More and better information is needed before informed decisions could be made on how to achieve greater efficiency, but the mechanisms through which government transfers funds to training institutions are likely to have an important effect on the way in which that funding is used and on institutional behaviour more generally, and therefore on efficiency.

A clearly formulated, transparent disbursement policy was lacking in all the countries in the study period. The Kiribati study, for example, notes that disbursement of funds is rather rigid, and incremental (Majumdar & Teaero 2014). The Vanuatu study notes that many of the grants and subsidies provided to TVET providers do not change year on year, despite changing patterns of student and industry demand (ACER, 2014a).

Most of the studies pointed to the need to move away from ad hoc and historical funding of institutions towards the wider use of formula-based funding based on actual costs of inputs and the use of more output-oriented approaches to funding TVET,

Input-based funding of institutions, even when closely monitored and well administered by a treasury system or TVET authority will not create the incentives necessary for institutions to improve their programs, their quality or learning and employment outcomes for students.

The Solomon Islands study noted that the movement towards output-based funding will require transparent disbursement mechanisms and fair funding rates for different types of courses, a higher degree of management autonomy for the TVET institutions, standard based quality assurance and transparent accounting mechanisms, and better information on course costs, completion rates and graduate outcomes. The pathway to output based

funding requires appropriate tools and the professional development of TVET managers (Bateman et al, 2014).

A movement towards output-oriented funding of institutions would involve:

- Avoidance of ad hoc funding; and
- The adoption of normative formula funding, based on inputs, outputs, outcomes so that public funding to each TVET institution can be funded from the public budget on the basis of an efficient and equitable standard formula. This formula could be based on student numbers (or, preferably, graduates), rather than the cost of their inputs and the development of a standardised system of unit costs for TVET in each country.

Additional allocation methods have proven effective in other contexts, including contract funding for training needs of special groups and competitive tendering but given the current state of institutional data and accountability, these are likely to be longer-term options.

4.3 A broader funding base

While the research suggests that the overall resourcing of TVET is very limited relative to economic and social needs, the rapidly expanding number of young women and men, and widely expressed concerns about the quality and relevance of existing TVET provision, it was not able to determine empirically that TVET is underfunded relative to an accepted standard or norm. Much stronger data, especially on outcomes, would be needed to come to an evidence-based view on whether the current levels of TVET funding are reasonable.

However, it did demonstrate the high dependency on just three funding sources: annual government budget appropriations, student fees and ODA (including APTC) which, together, comprise 92% of all funding to TVET (see Table 3).

Given the fiscal vulnerability of many of the participating countries, the heavy burden that student fees, particularly boarding fees, place on students and their families, and the risks associated with a dependency on ODA which cannot be assured for the long-run, it is reasonable to conclude that a broader funding base for TVET is needed if the TVET sector is to grow and diversify. It is also needed to ensure that all beneficiaries of TVET pay their fair share of the costs of providing it.

This indicates a need to consider how more private resources could be derived to support TVET financing. The studies offer a range of observations on this issue.

- **Church and NGO provision**. Church and NGO provision of TVET is already relatively significant in several of the Pacific Island countries studied (e.g. Samoa, Solomon Islands, Tonga). The research paints a picture of a church sector which is becoming less reliant on its founders to give it the resources it needs, and more reliant on government subsidies and its own capacity to earn revenues from fees and income generation. These trends may continue as TVET systems seek to meet the standards set by national qualification frameworks. The research concluded that it is hard to envisage ways in which Governments or other owners of TVET systems could systematically increase the church contribution (Horne 2014b).
- **Stimulate expansion of the private provision of training**. The PNG study, for example, notes that Governments – in developed as well as developing countries – seeking to broaden the funding base of a public service may rein back their own commitment, and then watch what happens; if the service is valued, other parties may come in to support it, or supply alternatives. This has been the case in PNG. Increased private provision would include charges to employers which reflect the actual cost of the service (Horne et al, 2014).

- **Greater contribution by industry**. There are many mechanisms through which greater contributions from industry might be achieved and these are canvassed in some detail in Palmer (2015b). Training levies are one mechanism. International experience does show that in the right context, levy systems do have certain advantages. The research suggests that the existing training levies (in PNG and Fiji) are not working as well as they might and that those countries could consider a review that would clarify the objectives, simplify the method of collection, enhance transparency and increase their effectiveness. The research suggests that introducing training levies is probably not feasible in the other five countries in the study where they are not done now but that Pacific Island countries may opt to undertake their own feasibility work into the suitability of a levy system for their country.
- **Public-private partnerships**. Various forms of partnership are possible. The successful partnership at the Kiribati Marine College between the Government of Kiribati, a consortium of German shipping agencies, and development partners, principally the Government of New Zealand is arguably the most successful example of this found in the studies, although others such as at Lae in PNG are being considered.

  Other possibilities were identified in relation to the funding of capital expenditure, ranging from facilities construction and maintenance only, through to the whole job of managing the school or college. One area which may be suited to private financing is dormitories, because the private sector can see a discrete stream of rental income to repay their investment. Dormitory costs can eat up a significant share of capital funding, when system owners would prefer to give priority to teaching accommodation and equipment (Horne, 2014b).

- **Greater income generation by institutions**. In all of the Pacific Island countries in the study, with the exception of Kiribati, TVET institutions recorded income generation activities from activities such as sales of products or services based on student labour and hire or rental of premises. However, across the six countries, income generated by TVET systems amounts to an average of only 1% of total revenue.

  Although there is often no explicit policy to discourage such activity, in three (Kiribati, Tonga, Vanuatu) of the four Pacific Island countries studied which stated it (Fiji being the fourth – see below), public TVET providers reported that they were not allowed to retain profits from such ventures to supplement their funding. This serves as a strong disincentive for training providers to undertake such income generation activities (Palmer, 2015b: Annex 3).

  Policies which allow retention of income generated, with the necessary safeguards to ensure that production does not displace but enhances learning could be considered.

The companion Overview Paper *Private Resources for TVET* (Palmer, 2015b) offers a number of other suggestions for how Governments could encourage such an expansion of private resources, including making TVET scholarships available across the spectrum of public and private providers on equal terms.

4.4 Student Fees and student financial support schemes

The impacts of student fees and their relationship to student financial support schemes is a highly complex issue, and there is little conformity across the participating countries. While the research offered no region-wide prescriptions, it did offer some general observations that warrant further consideration at country level (Horne, 2014) and these are outlined below.

The first is that fees are considered primarily as a device for cost recovery and cost sharing. Their role in also providing an incentive for providers to become more entrepreneurial and responsive to the needs of employers and students is not widely recognised.

The second observation is that fee setting in the participating Pacific countries, be it by central governments, local government or individual institutions, seems mostly to be based on broad judgements about the amounts needing to be raised and the capacity of users to pay. That may be appropriate in setting the target for the total amount to be raised through fees. But it does not remove the need to consider the use of variable fees to meet that total target. Fees which are uniform across courses with different costs encourage providers to supply more of the cheaper and less of the more expensive courses

Under the right conditions fees could be adjusted to reflect:

- Course costs by, as a starting point, aiming to recover a similar proportion of course costs through fees, thus sending the market a price signal about more expensive and cheaper courses;
- Market demand by setting higher fees for courses where demand was less sensitive to the level of fee.

To make a substantial contribution to the funding of formal TVET, fees need to be pitched at a level which puts a considerable strain on Pacific islanders' household income. This creates a risk that fees achieve their fiscal objective at the expense of excluding disadvantaged students, or aggravating the incidence of drop-out arising from financial stress. There are some signs that at the top end of the range, countries like Solomon Islands and PNG may have expected too much from fees.

Other developing countries have faced the challenge of protecting access for both the most able and for the disadvantaged while increasing fee revenue. No simple prescription has been found. It is important to be clear and realistic about the net contribution to TVET funding to be expected from fees, and about the most vulnerable groups whom it is desired to protect. Scholarship or other financial support schemes can then be devised to target those groups and costed. Concurrent work and study is a mode of TVET which PICs could expand on its own merits, and to build fee income without incurring student support costs.

The research suggests that because scholarships (and fee waivers) are such an important part of the funding mix in participating countries, their operation and impact would benefit from a specialist study, including a review of international experience in other low- and middle-income countries.

4.5 Equity in financing

The TVET sector has the potential to make a major contribution to equity for the poorest in the community, for women and men, for people with disabilities, people disadvantaged by geographic location, for young people seeking to enter formal or informal labour markets and for older women and men who in the past had limited opportunities to complete their schooling. These contributions can be achieved by focusing on their:

- access to relevant, good quality TVET providers and programs;
- participation in the full range of TVET programs;
- successful completion with support as needed, and graduation; and
- transition into the labour market.

All TVET systems should seek to achieve such equity objectives. To do so, action will be needed on a number of fronts, including but not confined to financing. TVET financing policies need to be fashioned so that an appropriate level of funding is provided to achieve

them and to do so through fit-for-purpose mechanisms for disbursing public funds to either providers or to individuals identified on verifiable criteria as disadvantaged.

As discussed above, scholarships and fees are important tools by which the Pacific countries studied can and do seek to achieve equity objectives, and any review of them will need to pay particular attention to whether they are equitable.

A move towards outcomes-based funding discussed above also has the potential to target TVET financing to equity objectives by specifying the terms and conditions under which public funding is made available to TVET providers. Such terms and conditions can be targeted to achieving access, participation, completion and transition targets.

Equity Training Funds could also be considered. These are mechanisms to sustain training for those working in the informal sector and others who lack the resources to pay for mainstream training. They may be funded by a carve-out from the proceeds of employer levies, or by grants from public funds or the private sector. The PNG study identified several examples involving private sector carve-outs.[11] The Australian-funded Employment and Training Fund in Vanuatu is another example of how a separate fund can be established to achieve both economic and equity objectives through TVET

However, effective targeting of public funds to achieve equity objectives will depend heavily on adequate systems for collecting and analysing both student data and financing data.

4.6 Strengthening the information and knowledge base about TVET financing

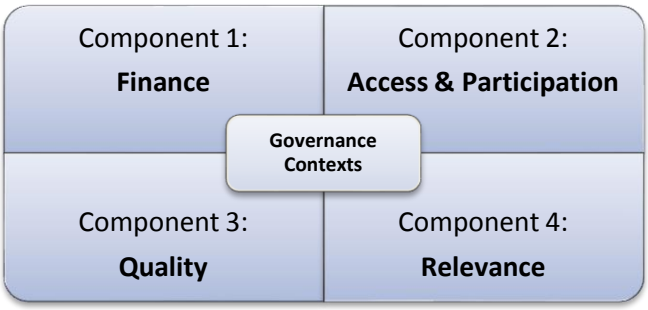
The ACER study has highlighted the fragmented nature of the provision of TVET in the Pacific. Data availability and data quality are very variable. It notes that although data on TVET for almost 60 countries is currently available through the UNESCO-UNEVOC World TVET Database, there are no Pacific Island countries among them, including any of the seven countries that participated in this research. Data for a further 45 countries have been collected for the World TVET Database, and is awaiting validation. Fiji is the only Pacific Island country in that group.

Unlike primary or secondary schooling or higher education, collecting and using TVET sector data is far from straightforward, as TVET is often highly fragmented and covers a range of different levels and types of provision.

Systematic data on TVET financing is best seen as one, albeit critical, element of the information and knowledge needed to improve TVET policy and practice. ACER (2014b) suggested that the Inter-Agency Group on TVET offers a helpful way of conceptualising where finance data 'fits' in the range of information that is needed for monitoring and evaluating TVET. It argued that finance is one of five interlocking components, along with governance, access and participation, quality, and relevance (ETF et al, 2013).

[11] Ginigoada Business Development Foundation and the PNG Sustainable Development Program.

Figure 2. Components for monitoring and evaluating TVET performance



Source: ETF, ILO & UNESCO, 2013: pp 7-8.

All of these five components are evident in the Regional Framework for TVET Development in Pacific Island Countries endorsed by Forum Education Ministers in 2012 (PIFS, 2012), as well as in the Pacific Education Development Framework, and in national TVET policy documents in a number of the countries participating in this study.

A comprehensive set of data to address, in an ongoing way, all components would be a major undertaking for any country, let alone the relatively small and resource-poor Pacific Island countries. What is needed in the Pacific context is identification of focus areas for regional cooperation in data development, collection and analysis that are likely to be particularly beneficial. Turnbull et al (2009) and Cook and Paunga (2010) make this point clearly in background work for the Ten Year Pacific Statistics Strategy and Riordan (2009) advances a similar argument in regard to labour market information and analysis in the Pacific.

The collection, analysis and use of high-quality TVET data will require cooperation at the regional level in a way that complements national data collection efforts. This would enable countries to share costs, gain scale economies and, critically, to ensure that the TVET data from any one country can be compared with other countries, thereby increasing opportunities for benchmarking performance and learning from others' experience.

One implication of the research is that a regional finance data collection based on international accounting standards could and should be a starting point.

Given that public providers overall comprise the largest share of TVET enrolments in the participating countries, ACER proposed that *public providers are the focus of initial data collection efforts.* It argued that in general, the courses provided by public providers in PICs tend to be longer in duration and more expensive to deliver than courses delivered by private providers in their various forms.

An initial focus on public providers also has pragmatic advantages in that public providers are relatively few in number, they tend to be larger than non-government providers and therefore potentially have more capacity for providing (and using) data, and there may be fewer potential commercial-in-confidence issues with collecting data from public than from private providers.

The companion Overview Paper *Strengthening TVET Finance Data Collections* (Karmel, 2015) offers pragmatic suggestions for how a TVET finance data collection could be framed and started based on clear data quality standards and collection processes.

A data collection is not an end in itself and policy interest will no doubt centre on questions of efficiency and effectiveness. Thus the ultimate aim would be to combine finance data with student data to provide measures of efficiency (for example, the cost of producing a

graduate) and to look at questions of effectiveness by looking at the cost of producing graduates on one hand and employment outcomes on the other. This will require the eventual development of a student collection that mirrors the finance collection. It will also require the systematic use of graduate tracer studies, labour force surveys or population census to allow for the identification of employment outcomes.

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Annex A: RESEARCH METHODS

Research Approach

The research brief suggested a research approach with four main features.

- *Focus on financing.* This was not a study of all aspects of TVET. It focused on the financing of TVET, while recognising the need to place financing in its context by considering issues of governance and strategic planning.
- *Primarily quantitative research.* The research would have a strong focus on collecting and analysing quantitative data, although qualitative methods such as interviews would be used to place data and information in its context and to inform analysis.
- *Partner government collaboration.* Engagement with the partner government and with a broad cross-section of national stakeholders to improve the quality of the country studies and promote research uptake and impact.
- *Research for capacity development*: Wherever possible, national researchers should be engaged as members of the research team and national officials and research institutions should be actively involved in the research where possible.

Research Questions

The research was guided by two over-arching sets of questions:

1) What are the current sources of post-secondary TVET finance? Will they sustain a quality TVET system? Why / Why not?

2) How efficient and effective is the current use of TVET funding? How could it be improved?

The detailed questions guiding the study were grouped into four broad categories.

- Sources of funding for TVET
- Expenditure patterns and trends in TVET
- Costs of TVET delivery
- Financial mechanisms for channelling funds to and facilitating expenditure on TVET

Research Methodology

The country studies were undertaken in two stages:

- Stage 1 (2012): Samoa, Vanuatu, Tonga and PNG Phase I (private sector TVET and scoping the full country study)
- Stage 2 (2013): Solomon Islands, Fiji, Kiribati and PNG Phase II (public sector TVET and completing the full country study)

A Research Plan was developed to guide the research process and was externally reviewed and adjusted for local circumstances as the research progressed. It included:

- A generic skills, occupations and training matrix to define the scope of TVET to be considered in the research was developed for the first study and progressively refined as other studies were undertaken. This scoping matrix is shown in Figure A1.
- Desk-based identification of the key data needed to answer the research questions. Six data fields (together with sub-fields) were identified as necessary for a comprehensive analysis: (i) Program offerings; (ii) Student numbers; (iii) Staffing; (iv) Funding sources; (v) Expenditure categories – planned and actual; (vi) Scholarship and other student assistance programs.

- Construction of data collection and recording templates. The four templates below had a similar structure and scope, although with modifications to meet different country circumstances.

  ~ Public TVET providers (on programs, enrolments, graduations, staffing, and revenue and expenditure)
  ~ Private (non-government) TVET providers (on programs, enrolments, graduations, staffing, and revenue and expenditure)
  ~ Regional TVET providers (Australia-Pacific Technical College was classified on a country of operation and source of enrolments basis)
  ~ Enterprise Training and Expenditure Survey to collect data on the industries involved, annual revenue and wages bill, employee numbers and occupations, types of employee training provided, and gross and net expenditure on training.

- The establishment of a National Reference Group (NRG) in each country to ensure that the study met national needs and engaged with key TVET stakeholders in the government and private sectors. These NRGs comprised senior representatives of a broad range of stakeholders, including employers. The NRGs typically met three times – twice during the fieldwork, and once as part of a national workshop to discuss the draft country report.
- The research sought to minimise the data burden on stakeholders. The study teams in each country, in consultation with the respective National Reference Groups, attempted to identify existing data sources for the key data fields. Where existing data were not available, or incomplete or out-of-date, the teams initiated first-hand data collections to fill the gaps. Each country report outlines the steps that the country research team followed in making the decision to initiate a new collection, and the nature of that collection.
- A facilitation visit to each country prior to main fieldwork commencing in order to engage with national stakeholders, to gain national support for the study, and obtain a deeper understanding of TVET in the country and the main issues concerning its financing and costs, including the availability of data.
- Fieldwork by a three-person research team for each country which included a local consultant. Fieldwork was conducted in 2012 and 2013, and durations ranged from 5 weeks (Kiribati) to 20 weeks (PNG).
- A national dissemination forum was conducted at the end of the fieldwork.
- A common structure for all country reports was developed at the start of the research and applied across the seven country studies to assist comparability.

Scope of TVET used in the research

TVET is a diverse sector. It comprises formal, non-formal and informal learning. It takes place across a wide range of settings including schools, public and private vocational centres and institutes, higher education institutions and workplaces in both the formal and informal economies. TVET also has a multitude of very different institutional arrangements, organisational approaches and regulations. The diversity and sometimes fragmentation of TVET governance and structures poses challenges for building up a comprehensive picture of the 'sector'.

The following broad definition of TVET was provided in the research brief for the purpose of scoping the research.

> *Post-secondary education and training programs designed to develop vocational skills. Degree and higher level programs, and subjects delivered as part of general education by secondary schools, are not included in this definition. (AusAID, 2011)*

There are a number of possible ways of defining TVET, but the advantage of the definition used in the study is that it focused on TVET's purposes, namely "designed to develop vocational skills", and distinguished TVET from general education programs in secondary schools (although specialist TVET secondary schools were in scope where they existed), and also separately identified TVET from degree programs offered by universities (while recognising that in the Pacific higher education and TVET are often provided within the same institution).

The scoping matrix shown in Figure A1 presents the broad definition of TVET used in the study. It identifies TVET programs by (a) the skill categories and levels they seek to develop and (b) by the institutions that offer them. Skill categories and levels were in turn identified according to the qualification levels they are pitched at, and examples of the types of occupations to which they are directed.

Figure A1 could also be considered as providing an appropriate framework for progressively populating a TVET data collection among Pacific Island countries.

Drawing on this generic matrix, a more specific matrix was developed for each country by the research team in consultation with the respective NRG, and which reflected the skill levels, occupations and training providers in the country concerned.

For the purposes of the study, TVET programs were taken to be formal programs that:

(a) are pitched at qualification levels 1 to 6 (Certificate to Advanced Diploma); and

(b) prepare students and trainees with the skills, knowledge and aptitudes that employers require for those employed in trade, technical and para-professional occupations (International Standard Classification of Occupations -ISCO- 2008, categories 3 to 8).

The Pacific Qualifications Framework (PQF) was used in Figure A1 in a generic sense to help position the study's focus among the range of skill levels and qualifications. The existence of the PQF and its role as a reference point for national frameworks is a considerable asset in the quest for international comparability of TVET data from Pacific Island countries.[12] The research teams used the 2008 International Standard Classification of Occupations (ISCO) to show the relationship between skill levels and illustrative occupations. The use of ISCO 2008 in the research (and in any future data collection) is a further aid to the harmonisation of data from different Pacific Island countries and its comparability.

[12] Details of the Pacific Qualifications Register can be found on the Secretariat of the Pacific Community (SPC) website http://www.spbea.org.fj/Our-Work/Projects/Pacific-Register-for-Qualifications-Standards.aspx

Figure A1. The skills, occupations and training matrix guiding the study

Level of skills training (based on the Pacific Qualifications Framework)		Illustrative occupational skill category (based on ISCO 08)		TVET providers			
				Training institutions			In-house training by employers in public and private sectors
				public	private	regional	
10	Doctoral	1/2	Managers/ professionals				
9	Masters						
8	Post graduate cert/dip						
7	Bachelor degree						
6	Advanced diploma	3	Technicians and associate professionals				
5	Diploma						
3/4	Trade certificate	4	Clerical support workers				
		5	Service and sales workers				
		6	Skilled agricultural, forestry and fishery workers				
		7	Craft and related trades workers				
1/2	Semi-skilled/ operative	4	Clerical support workers				
		5	Service and sales workers				
		8	Plant and machine operators, and assemblers				
	Basic manual	9	Elementary occupations				

Note: The sections shaded green are defined as the scope of TVET for the purposes of the study.

Methodological limitations

Each of the Country Reports was able to address the research questions to varying degrees, with the main constraint being the amount of data that it was possible to compile – or in many instances, of necessity to collect first-hand – with the time and resources available.

As detailed in the seven Country Reports, the research teams encountered many data gaps and limitations. While some countries had more data already available than others, in general the amount of accessible and up-to-date data was quite limited. Particularly severe problems in data collection were experienced in Fiji and, to a lesser extent, in PNG.

The main gaps in regard to financial data related to: government-funded actual expenditures as opposed to budgeted expenditures; financial data at the TVET provider level especially in regard to identifying the unit costs of provision of different types of programs; and the extent and resourcing of enterprise-based training.

Employer Training and Expenditure Surveys were conducted in five countries. Efforts to administer the survey in Kiribati and PNG were not successful. Because of the non-random samples and varying response rates, the results of this survey cannot be taken as representative for the countries concerned or for the region. Moreover, the study was unable to capture valid and reliable data on informal on-the-job training by enterprises.

The country studies detail the cautions needed in interpreting the country data. Uneven coverage of the data limits the comparability of country figures.

Analysis of the extent to which financing mechanisms are being used to promote inclusion of groups at risk of labour market and social exclusion was limited not only by the general absence of disaggregated financial data and the complexity of financial flows to TVET in each country but also by the absence of student data disaggregated by different population groups (poverty, income quintile, disability or rural) and lack of labour market information.[13]

There was only very limited information on graduates' experiences in the labour market, including employers' satisfaction, employment rates, earnings or career paths. The lack of outcomes data made it very difficult to provide any credible assessments about the extent to which TVET is meeting the needs of individuals and employers.

[13] Disaggregation of student data by gender was usually feasible.

Annex B: TVET structures and enrolments[14]

For the purposes of the study, TVET programs were taken to be those that are directed towards qualifications in the range from Certificate to Advanced Diploma, and which provide knowledge, skills and aptitudes for occupations in the trades, technical and para-professional areas. Such programs are provided in all of the participating countries in a variety of institutional forms.

1. TVET PROVIDERS

The distinction between public and private providers made in the research relates to the managing organisation, and not the source of funds. Among the participating countries, a number of private providers, including church-run providers, receive significant government funding, and some public providers receive 'private' income in the form of student fees, and sales of goods and services.

The distinctions between the different types of providers, however, are not everywhere clear-cut. For example:

- In some (public, private and regional) higher education institutions, separating out TVET provision from other forms of post-school education and training (PSET) is not always straightforward, especially where TVET is only a minor part of the institution's operations. The inclusion of TVET as part of an organisation also providing higher education programs was evident in all of the seven participating countries, to varying extents.
- Some private TVET providers are in effect part of the public education and training system, relying heavily, if not exclusively, on public funding. This is the case in a number of participating countries with faith-based training providers, such as the Solomon Islands and Tonga.
- The distinction between a (registered) training provider and an enterprise undertaking training (in either the public or private sector) is often blurred, especially when the latter has a well-developed (stand-alone) training function within its organization. In general the rule applied is that a state-owned enterprise (SOE) that undertakes training is classified as an industry trainer if its training is confined to its own employees, but is a public TVET provider if it is open to others from outside. A similar distinction is made in the private sector.

In this Annex organisations that fall within the first three categories are identified. Each of the seven country studies also attempted to gauge the nature and extent of training undertaken in the fourth category.

A. Public providers

As would be expected, most public TVET providers come under the aegis of the country's education and training agencies - ministries and departments – or are stand-alone statutory bodies, with a measure of autonomy. There are others, however, that come under other line ministries. Table B1 provides greater detail.

[14] This Annex is a full extract of Chapter 4 in the draft synthesis report prepared by ACER (2014b).

Table B1. Public providers of TVET

Participating country	Qualification level (actual or notional)	Public providers	
		Education and training agencies, and autonomous statutory bodies	**Other line ministries and agencies**

Fiji	Cert.3 and above	• Fiji National University (FNU)
		  ○ College of Agriculture Fisheries and Forestry (CAFF)
		  ○ College of Engineering, Science and Technology (CEST)
		  ○ College of Business, Hospitality and Tourism Studies (CBHTS)	

	Cert.1 and 2	• Ministry of Education (MoE)
		  ○ Ratu Mara College
		  ○ Suva Vocational College
		  ○ Vinekananda Technical Centre
			• Ministry of Youth and Sports (MoYS) Youth Training Centres (YTC)
			• Ministry of iTaukei Affairs (MoiTA) Centre for Appropriate technology and Development (CATD
			• Ministry of Agriculture (MoA) training centres
			• Ministry of Forestry and Fisheries (MoFF) forestry and timber industry training centres
			• Ministry of Industry and Trade (MoIT) National Centre for Small and Micro-Enterprise Development (NCSMED)
			• Ministry of Labour (MoE) national employment centres
			• Ministry of Women, Social Welfare and Poverty Alleviation (MWSWPA)

	other	• FNU - National Training and Productivity Centre (NTPC)	
Kiribati	Cert.3 and above	• Kiribati Institute of Technology (KIT)	
	Cert.1 and 2	• KIT • Maritime Training Centre • Fisheries Training Centre	Short course programs run by • Ministry of Environment, Land and Agricultural Development (MoELAD • Ministry of Commerce, Industries and Commerce (MCIC) • Ministry of Fisheries and Marine Resources Development (MoFMRD)
	other		

PNG	Cert.3 and above	• TVET programs offered by public universities
		  ○ University of PNG (UPNG)
		  ○ University of Technology Lae (UTL)
		  ○ Goroka University (GU)
		  ○ University of Natural Resources and Environment (UNRE)
		• National Polytechnic College (NPC)
		• Port Moresby Technical College (PMTC)
		• Port Moresby Business College (PMBC)
		• Goroka Technical College (GTC)
		• Mt Hagen Technical College (MHTC)
		• Madang Technical College (MTC)
		• Kokopo Business College (KBC)
		• West New Britain Technical College (WNBTC)
			• PNG Maritime College
			• PNG Institute of Public Administration
			• Department of Works, Works Institute of Training
			• PNG Power Training College

	Cert.1 and 2		

	other	• National Department of Education (NDoE)
		  ○ vocational training centres
		  ○ technical high schools	

Participating country	Qualification level (actual or notional)	Public providers	
		Education and training agencies, and autonomous statutory bodies	Other line ministries and agencies
		○ community colleges	
Samoa	Cert.3 and above	• National University of Samoa (NUS) ○ Faculty of Applied Science ○ Faculty of Business and Entrepreneurship	
	Cert.1 and 2		
	other	• NUS - Oloamanu Centre	
Solomon Islands	Cert.3 and above	• Solomon Island National University (SINU)	
	Cert.1 and 2		• Solomon Islands Institute of Public Administration and Management (IPAM)
	other		
Tonga	Cert.3 and above	• Tonga Institute of Higher Education (TIHE) • Tonga Institute of Science and Technology (TIST)	
	Cert.1 and 2		
	other		
Vanuatu	Cert.3 and above	• Vanuatu Institute of Technology (VIT) • Vanuatu College of Nursing (VCN) • Vanuatu Maritime College (VMC) • Vanuatu College of Agriculture (VCA)	
	Cert.1 and 2		

Sources: Derived from the seven country studies

B. Private providers of TVET

Private TVET providers come in a wide variety of forms (see Table B2):

- Some offer a range of programs at certificated levels, some do the same but in specialised fields, such as IT or business studies.
- Many provide only short non-certificated courses, which are offered several times a year
- Some private providers, as already noted, are effectively part of the public TVET system, whilst others are adjunct to an enterprise's employee training regime.
- Most private providers are not-for-profit operations, run by faith-based bodies and non-government organisations (NGOs), whilst others are businesses run for profit.

It is the task of the regulatory agencies identified in Table B4 to recognise and register private TVET providers, to bring standards and accountability to the sector.

Table B2. Private Providers of TVET

Participating country	Private provider
Fiji	• 4 faith-based providers, either registered or recognized by FHEC • 22 other providers, either registered or recognized by FHEC • 80 privately-owned Vocational Training Schools funded by MoE • Fiji Vocational Technical Training Centre for Persons with Disabilities
Kiribati	• 1 faith-based college • Kiribati Chamber of Commerce and Industry (KCCI)

PNG	• TVET programs offered by private universities
	  ○ Pacific Adventist University
	  ○ Divine Word University
	• 19 RTOs open to all and offering a wide range of courses
	• 151 semi-public RTOs with links to government departments
	• 13 industry trainers focused on employee training
	• 21 small specialist RTOs

Samoa	• 3 faith-based technical colleges • 1 for-profit provider
Solomon Islands	• 39 faith-based vocational and rural training centres • 1 faith-based technical institute • 5 other not-for-profit (?) providers
Tonga	• 8 faith-based technical colleges • 1 other private (not-for profit) provider
Vanuatu	• 9 faith-based (mission) providers • 30-40 rural training centres under the umbrella of Vanuatu Rural Development Training Centre Association (VRDTCA)

Sources: Derived from the seven country studies.

C. Regional providers

There are just two regional providers offering TVET programs in a number of the participating countries, the Australia Pacific Technical College (APTC) and the University of the South Pacific USP). The Open College of UPNG also offers courses on the Solomon Islands.

As Table B3 shows, APTC had campuses in four countries at the time of the study (it has subsequently started operations in the Solomon Islands), but draws its students from across the whole region. USP has campuses in all participating countries except PNG. It offers TVET courses through its centres of continuing and community education.

Table B3. Regional providers of TVET

Participating country	Regional provider in-country training operations

Fiji	• Australia Pacific Training College (APTC)
	  ○ School of Trades and Technology (STT)
	  ○ School of Hospitality and Community Services (SHCS)
	• University of the South Pacific (USP)
	  ○ Regional Centre for Continuing and Community Education (RCCCE)

Kiribati	• USP ○ Centre for Community and Continuing Education (CCCE)
PNG	• APTC ○ STT

Samoa	• APTC
	  ○ STT
	  ○ SHCS
	• USP
	  ○ CCCE

Solomon Islands	• USP
	  ○ CCCE
	  ○ College of Foundation Studies (CFS)
	• Open College of UPNG

Tonga	• USP
	  ○ CCCE
	  ○ CFS

Vanuatu	• APTC
	  ○ SHCS
	• USP
	  ○ CCCE

Note: The APTC's two program areas are the School of Trades and Technology (STT) and the School of Hospitality and Community Services (SHCS).
Source: Derived from the seven country studies

2. SYSTEM REGULATION AND OVERSIGHT

Regulatory authorities for TVET, or for post-school education and training (PSET) more broadly – that register training providers and accredit their programs within a qualifications framework – that have a degree of autonomy within government, and hence from the public provision of TVET, have recently been established in Fiji, PNG, Samoa, Tonga and the Solomon Islands. Table B4 lists the authorities concerned. The regulatory authorities have been established under legislation and their governing boards generally comprise senior representatives of relevant government departments, PSET providers, and employers. In Kiribati and the Solomon Islands no such agency is yet in operation.

Table B4. TVET regulatory authorities, by country

	Regulatory body	Qualifications framework	Apprenticeship program
Fiji	• Fiji Higher Education Commission (FHEC)	• Fiji Qualifications Framework (FQF) under FHEC	• National Training and Productivity Centre (NTPC) within Fiji National University (FNU)
Kiribati	• Ministry of Labour and Human Resource Development (MoLHRD)	• currently no national qualifications framework	• currently no apprenticeship program
PNG	• National Department of Education (NDoE) • National Training Council (NTC)	• PNG TVET Qualifications Framework (PNGQF-TVET) under NTC	• National Apprenticeship and Trade Testing Board (NATTB) under Ministry of Labour and Industrial Relations (MoLIR)
Samoa	• Samoa Qualifications Authority (SQA)	• Samoa Qualifications Framework (SQF) under SQA	• Ministry of Commerce Industry and Labour (MoCIL) Apprenticeship and Employment Services
Solomon Islands	• Ministry of Education and Human Resource Development (MoEHRD)	• currently no national qualifications framework	• Apprenticeship Board under Ministry of Commerce, Industry and Employment (MoCIE) • National Training and Trade Testing Unit (NTTTU) under MoCIE
Tonga	• Ministry of Education and Training (MoET) • Tonga National Qualifications and Accreditation Board (TNQAB)	• Tonga Qualification Framework under the TNQAB	• currently no apprenticeship program
Vanuatu	• Ministry of Education and Training (MoET) • Vanuatu Qualifications Authority (VQA), formerly the National Training Council	• Vanuatu Qualifications Framework, under VQA	• currently no apprenticeship program

Source: Derived from the seven country studies

The Secretariat of the Pacific Board for Educational Assessment (SPBEA, 2011) has developed a Pacific Qualification Framework (PQF) although, as shown in Table B4, a number of participating countries have already developed or are developing their own. The

Australia Pacific Technical College (APTC) issues certificates and diplomas that accord with the Australian Qualification Framework (AQF).

Formal apprenticeship programs operate in four of the participating countries.

3. TVET STUDENT NUMBERS BY TYPE OF PROVIDER

Student record keeping by TVET providers, even in the public sector, is patchy, and is not everywhere a requirement, even by funding bodies. Systematic, comprehensive and up-to-date student data collection, using internationally recognized and recommended categories, formats and definitions, is undertaken by few education and training authorities in the participating countries. As a consequence, even the most basic data relating to student enrolments and course graduations was difficult to assemble. Nevertheless, as information of this nature is vital to any comprehensive study of the financing of TVET, attempts had to be made to fill in the gaps, however provisional the assumptions required.

The figures contained in this section are based upon the estimates contained in the seven country study reports. It is to them that the reader should turn for greater detail.

Enrolment estimates are made on two bases – raw head-counts of students enrolled in TVET courses, and full-time equivalent (FTE) enrolments. The latter are necessary because TVET courses are typically of different lengths, of different duration, are offered in a variety of modes so that comparing and aggregating enrolment numbers by simple head-count can be potentially misleading. Some TVET programs are conducted on a full-time basis and may run over several years, whilst others are short-course programs of only a few weeks or months duration and are frequently offered a number of times a year.

FTE estimates require information regarding the number of student contact hours each course is, and then expressing that as ratio to a full-time course (where a full time course is assumed to be a minimum of 1,200 hours a year - 6 hours a day x 5 days a week x 40 weeks). Unfortunately student contact hour information (important also in unit cost calculations) was not everywhere available and hence had often to be inferred, for estimates to be made.

It must be stressed that these estimates should be treated with caution. The purpose of this section is to gain a broad perspective on the size of the TVET sector across the participating countries and the relative importance of its major components. Even after making a range of assumptions, and cautious estimates, nevertheless, there are still gaps. The overall picture presented, however, is probably a reasonable likeness.

Enrolment estimates can be made for each of the major TVET sub-sectors – public, private and regional providers. In some participating countries these figures can be further disaggregated. Table B5 provides estimates on a head-count basis and Table B6 provides estimates of FTE enrolments.

Table B5. Estimated enrolments in TVET by head-count, by sub-sector

	Fiji *[2012]*	Kiribati *[2012]*	PNG *[2011]*	Samoa *[2012]*	Solomon Islands *[2011]*	Tonga *[2012]*	Vanuatu *[2011]*
Government post-school level TVET providers	22,212	1,634	6,042	569	1,125	851	1,842
Government school-level TVET providers	2,634		23,736				
Government other providers	410			400			
Total government sector	**25,256**	**1,634**	**29,778**	**969**	**1,125**	**851**	**1,842**
For-profit private providers				292	99	294	
Not-for-profit private providers		5		393	4,207	1,057	1,181
Total private providers	**3,415**	**5**	**5,993**	**685**	**4,306**	**1,351**	**1,181**
APTC	593	n.a.	153	240	n.a.	n.a.	278
Other regional providers	250	744					
Total regional providers	**843**	**744**	**153**	**240**	**-**	**-**	**278**
Estimated total enrolments	**29,514**	**2,383**	**35,824**	**1,894**	**5,431**	**2,202**	**3,301**
Country population (thousands)	**837**	**103**	**7,725**	**188**	**516**	**103**	**234**
Percent of population enrolled in TVET	**3.5%**	**2.4%**	**0.5%**	**1.0%**	**1.1%**	**2.2%**	**1.4%**

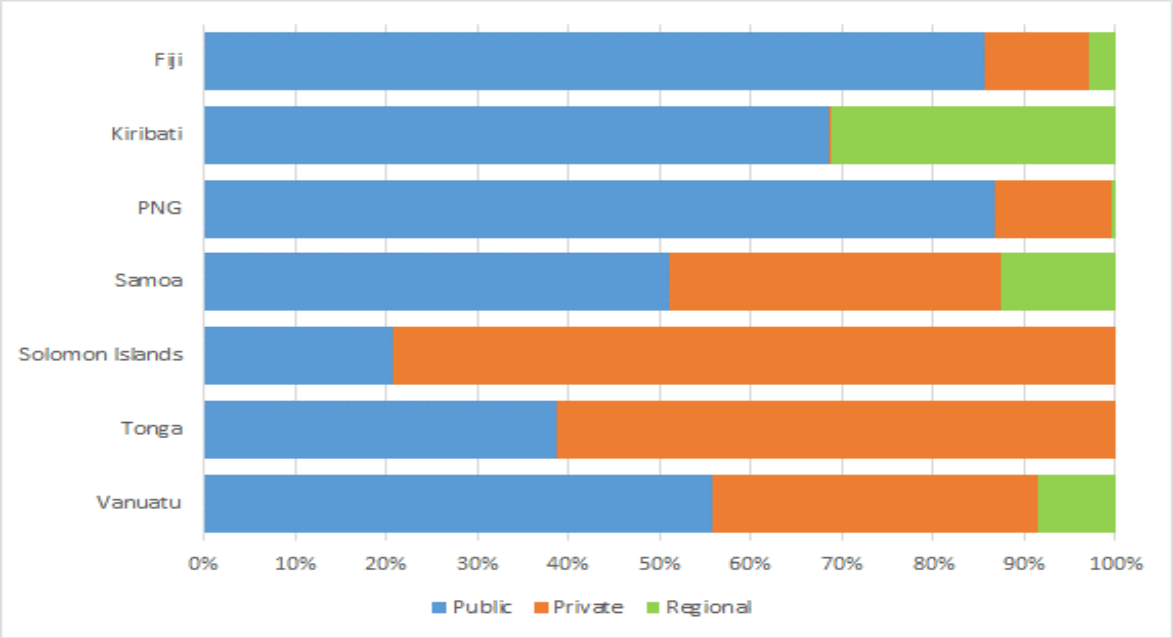
Sources: Derived from the seven country studies

As Table B5 indicates, there is a very wide range among the participating countries in the estimates of total TVET enrolments - from an estimated 1,900 enrolments in Samoa, 2,200 in Tonga and 2,400 in Kiribati up to 29,500 enrolments in Fiji and 35,800 in PNG. Vanuatu and the Solomon Islands lie towards the lower end of this range, with estimated enrolments of 3,300 in Vanuatu and 5,400 in the Solomon Islands.

The final two rows of Table B5 place the enrolment figures in context by expressing TVET enrolments as a proportion of each country's population. PNG, although having the largest number of TVET enrolments in fact has the lowest proportion of its population (an estimated 0.5%) enrolled in TVET. Fiji, with an estimated 3.5% of its population enrolled in TVET, has the most extensive participation. The proportion of the population enrolled in TVET in the other countries ranges from 1.0% in Samoa, 1.1% in the Solomon Islands and 1.4% in Vanuatu up to 2.2% in Tonga and 2.4% in Kiribati. The countries differ substantially in the absolute size of TVET as well as in its relative importance in terms of the proportion of the population enrolled.

Figure B1 expresses the distribution of enrolments in terms of the broad type of provider where students are located (public, private or regional). In the participating countries TVET is an activity mainly conducted in institutions that can be classified as *public TVET providers* in that they are largely under the administration of government ministries, departments and other agencies. In five countries the majority of TVET enrolments are estimated to be in public providers: Fiji (86%); PNG (83%); Kiribati (69%); Vanuatu (56%); and Samoa (51%). In both Tonga and the Solomon Islands, although the minority of TVET students were enrolled in public institutions (39% and 21%, respectively), most of the private providers (largely church-administered) received substantial public funding.

Figure B1. Composition of enrolments in TVET by head-count, by public, private and regional providers



Note: 2011 data for PNG, the Solomon Islands and Vanuatu; 2012 for the other countries.
Sources: Derived from the seven country studies

Horne (2014b) has estimated that the share of TVET enrolments in 'pure' private providers (i.e. those wholly or predominantly reliant on raising their own revenue without government or donor support) is less than 5% in most of the participating countries.

Given that public providers overall comprise the largest share of TVET enrolments in the participating countries and, as discussed below, the courses provided by public providers tend to be longer in duration and have higher unit costs than in most private providers, it is the costs of public providers that are generally the main influence on overall TVET costs.

Table B6 provides estimates of TVET enrolments on an FTE basis in the participating countries. Figure B2 expresses these data in terms of the distribution of FTE enrolments among public, private and regional providers. The FTE estimates need to be treated cautiously due to the difficulties of estimating course hours and durations that were noted earlier.

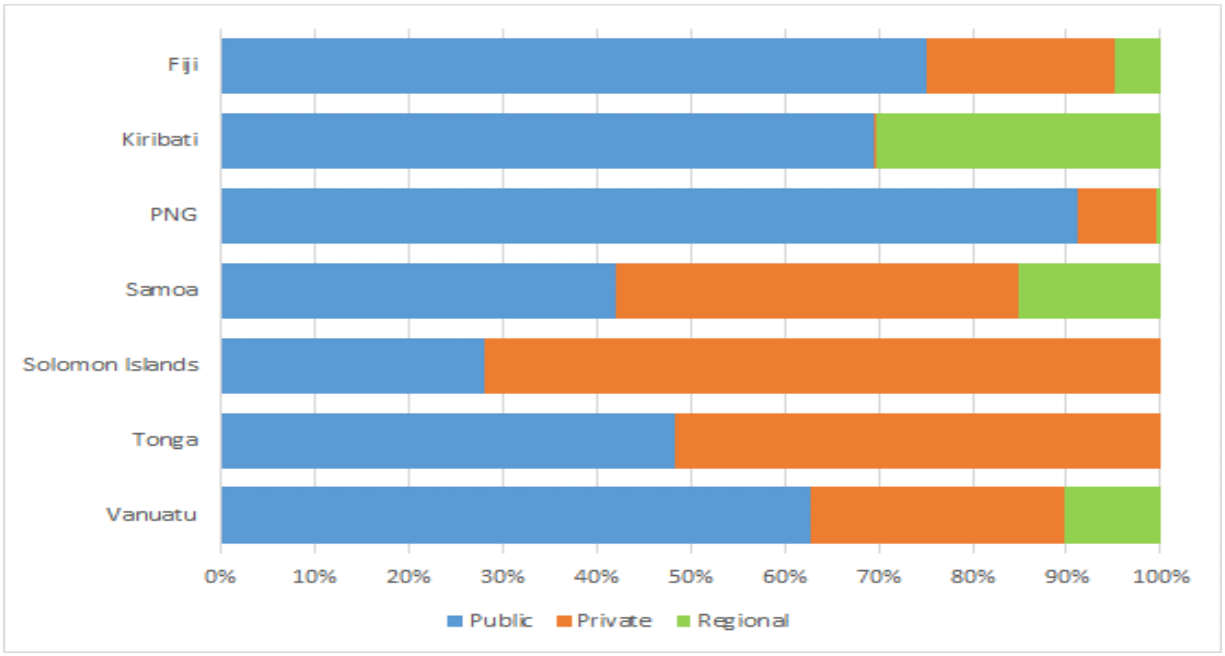
It is noteworthy that in most countries, the number of FTE enrolments is reasonably close to the number of TVET enrolments on a head-count basis (see Table B5). The main exception is in Fiji where FTE enrolments are about 58% of the head-counts figure. In PNG, Samoa and Vanuatu the FTE figure is in the range of 80-90% of enrolments expressed in head-count terms and in Kiribati, the Solomon Islands and Tonga it is in the range from 65% to 75%. These data indicate that most of the TVET students in the participating countries are enrolled on a full-time basis. This feature was often raised in the consultations as an indicator that the TVET sector lacks flexibility in the range of programs on offer, and is generally geared towards training at the pre-employment level.

Table B6. Estimated FTE enrolments in TVET, by sub-sector

	Fiji *[2012]*	Kiribati *[2012]*	PNG *[2011]*	Samoa *[2012]*	Solomon Islands *[2011]*	Tonga *[2012]*	Vanuatu *[2011]*
Government post-school level TVET providers	9,736	1,063	5,942	569	1,035	785	1,695
Government school-level TVET providers	2,634		22,296				
Government other providers	410			100			
Total government sector	**12,780**	**1,063**	**28,238**	**669**	**1,035**	**785**	**1,695**
For-profit private providers				292	61	183	
Not-for-profit private providers		5		393	2,608	656	732
Total private providers	**3,415**	**5**	**2,574**	**685**	**2,670**	**839**	**732**
APTC	593		153	240			278
Other regional providers	250	462					
Total regional providers	**843**	**462**	**153**	**240**	**-**	**-**	**278**
Estimated total	**17,038**	**1,530**	**30,965**	**1,594**	**3,705**	**1,624**	**2,705**

Sources: Derived from the seven country studies.

Figure B2. Relative composition of FTE enrolments in TVET, by sub-sector



Note: 2011 data for PNG, the Solomon Islands and Vanuatu; 2012 for the other countries.
Sources: Derived from the seven country studies

Other key features to emerge from the data presented in this section are:

- PNG and Fiji have by far the largest number of TVET enrolments, whether in terms of head-count or FTE numbers. They dwarf all other participating countries;
- Private providers play virtually no role in Kiribati, and a relatively small role in PNG. In all other participating countries, however, their role is more significant. In the Solomon Islands they are the largest contributor to total enrolments;

- Enrolments in faith-based private providers are especially important in Samoa and Tonga; and
- Regional TVET providers – APTC and USP – have only a minor role to play, numerically, in terms of TVET enrolments in the participating countries.

4. TVET ENROLMENTS BY INSTITUTION

Table B7 identifies some 23 national and 2 regional post-school education and training institutions that enrol students in TVET programs. It also identifies a range of other sub-groupings of TVET providers from both the public and private sectors. These are mostly made up of small-scale vocational training centres of one sort or another. The table ranks them according to their latest available head-count of enrolments.

The noticeable features of this table are:

- Whilst the PNG National Department of Education vocational training centres collectively enrol the most students, by far the largest institutional enrolment is in the Fiji National University TVET programs in Fiji. Whilst it enrolled over an estimated 22,000 students in 2012, the next largest TVET institutions had enrolments between 1,000 and 1,400. Indeed, most had enrolments of much less than that.
- A similarly skewed distribution appears amongst the other TVET provider grouping, with the vocational training centres grouping in PNG being vastly bigger than any other in the region.
- What is striking is just how small most TVET providers are. This raises questions about their effectiveness as training deliverers and about the cost-effectiveness of their operations.

Table B7. Enrolments, by head-count, in TVET institutions

Participating country	Institution/ system	Head count
PNG	Vocational training centres	22,296
Fiji	Fiji National University (FNU)	22,212
Sol Is	Vocational training centres	4,205
PNG	PNG RTOs	4,151
Fiji	Fiji private providers	3,415
Fiji	Fiji Ministry of Education vocational schools (87)	2,634
Kiribati	Maritime Training Centre (MTC)	1,386
Tonga	Tonga private providers	1,351
Regional	Australia Pacific Training College (all campuses)	1,264
Vanuatu	Rural training centres	1,181
Sol Is	Solomon Island National University (SINU)	1,125
PNG	National Polytechnic College (NPC)	1,117
Vanuatu	Vanuatu Maritime College (VMC)	871
Vanuatu	Vanuatu Institute of Technology (VIT)	814
PNG	Goroka Technical College (GTC)	709
Samoa	Samoa private providers	685
PNG	Kokopo Business College (KBC)	677
Samoa	National University of Samoa (NUS)	669
PNG	Port Moresby Technical College (PMTC)	595
PNG	Port Moresby Business College (PMBC)	594
Regional	USP centres for continuing and community education	526
PNG	Mt Hagen Technical College (MHTC)	489
PNG	Madang Technical College	461
Tonga	Tonga Institute of Higher Education (TIHE)	457
PNG	University of PNG (UPNG)	419
Fiji	other Fiji government agencies	410
PNG	West New Britain Technical College (WNBTC)	383
Tonga	Tonga Institute of Science and Technology (TIST)	354
PNG	University of Natural Resources and Environment (UNRE)	317
PNG	University of Technology Lae (UTL)	310
PNG	Goroka University (GU)	274
Kiribati	Kiribati Institute of Technology (KIT)	144
Kiribati	Fisheries Training Centre	85
Vanuatu	Vanuatu College of Agriculture (VCA)	79

Note: 2011 data for PNG, the Solomon Islands and Vanuatu; 2012 for the other countries.
Sources: Derived from the seven country studies.

Annex C: Main categories of estimated expenditure on TVET

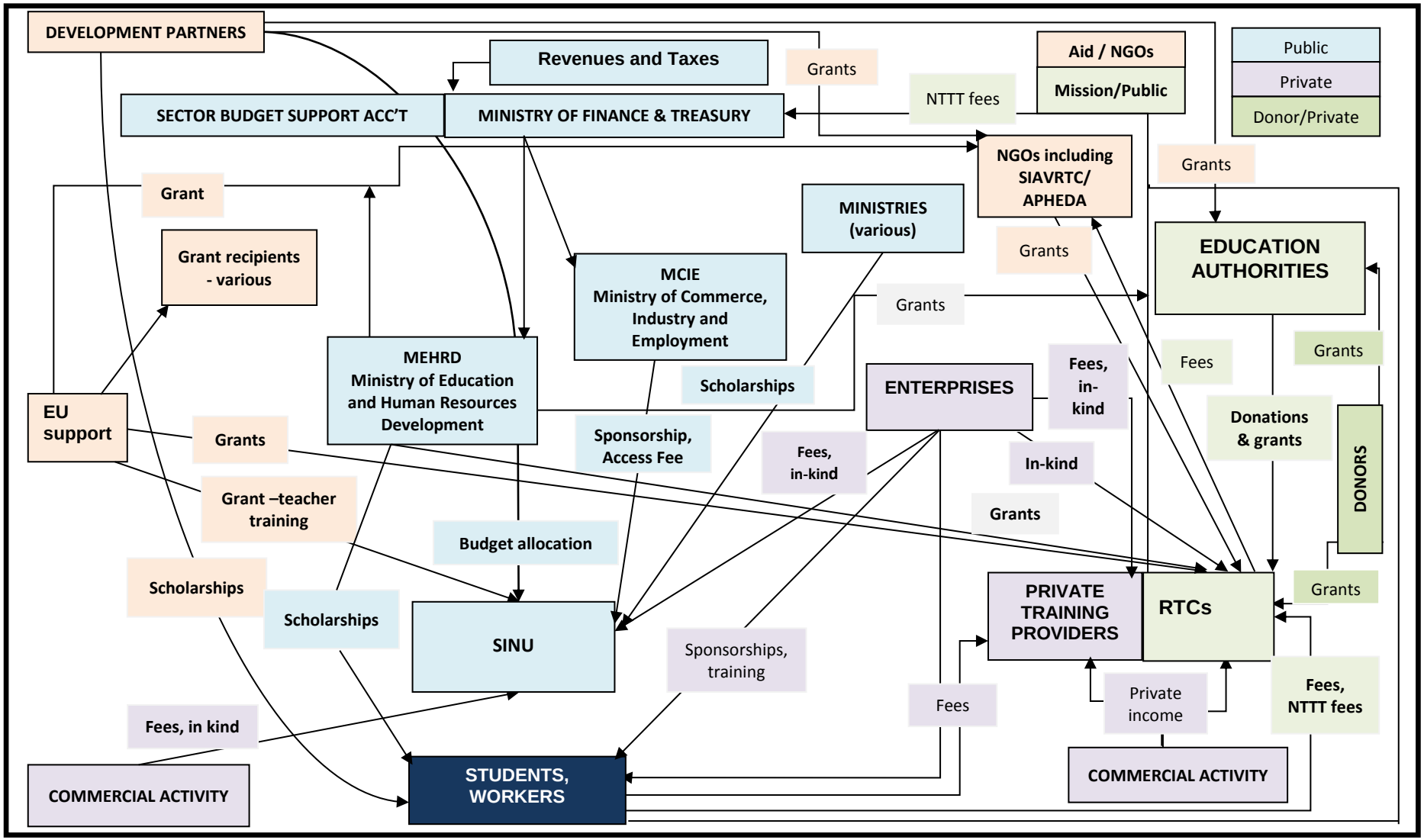
Units: US$ millions

	Fiji	***Kiribati***	***PNG***	***Samoa***	***Solomon Islands***	***Tonga***	***Vanuatu***		
	2012-13	*2012*	*2012*	*2011-12*	*2012*	*2011-12*	*2012*		
Conversion factor from local currency to US$	*0.53*	*0.89*	*0.39*	*0.43*	*0.13*	*0.53*	*0.0105*	***Total***	***% of recurrent exp.***
Personnel expenditure	23.18	1.66	15.08	1.54	4.96	3.10	4.11	*53.63*	*51%*
Maint. & other operating exp.	11.65	1.70	14.60	0.63	2.61	3.65	1.78	*36.62*	*35%*
Overheads	11.30	--	2.55	1.1	0.09	--	0.01	*15.05*	*14%*
Total recurrent expenditure	**46.14**	**3.36**	**32.23**	**3.26**	**7.66**	**6.75**	**5.91**	***105.30***	***100%***
Capital expenditure	0.10	5.07	13.88	0.29	0.60	0.30	0.26	*20.50*	
Scholarships	1.80	8.43	11.20	0.09	22.84	0.25	1.12	*45.73*	
Other expenditure	--	--	--	--	5.10*	0.25	--	*5.35*	
Total expenditure (exc. APTC)	**48.04**	**16.85**	**57.31**	**3.64**	**36.20**	**7.55**	**7.28**	***176.88***	
APTC	11.31	--	5.11	5.23	--	--	2.52	*24.17*	
Total expenditure including APTC	59.35	16.85	62.42	8.87	36.20	7.55	9.80	*201.05*	

Notes:
(1) The numbers are based on data collected by the country teams. In some cases institutions surveyed were just a selection of the numbers in country; total numbers would be much higher. So comparisons are better focused on proportions than numerical totals.
(2) The estimates of expenditure on scholarships need particular caution because of the difficulty of determining the sector to which scholarships are most appropriately classified.
(3) APTC is treated separately because it is a regional provider with funding arrangements separate from national systems. There were no APTC campuses in Kiribati, the Solomon Islands or Tonga. Expenditures on the Australian and Fiji-based administration of APTC were apportioned across the other four countries in proportion to the enrolments on their campuses.
* This comprises the EU (EDF9) TVET Grant, MEHRD TVET monies to VRTCs other than personnel wages and TVET MEHRD Development - Development expenditures include the upgrading of TVET programs through accreditation, training materials or consultant costs, or professional development programs.

Source: Extracted from the draft synthesis report (ACER 2014b, Table 6.1) which was derived from the seven country studies.

Annex D: Summary diagram of TVET financing flows in Solomon Islands



Source: Bateman et al (2013) Solomon Islands Country Report, Figure 13.1, p.132.